

## James River Basin

The James River Basin occupies the central portion of Virginia and covers 10,206 square miles or approximately 25 percent of the Commonwealth's total land area. It is Virginia's largest river basin and is made up of the Upper, Middle, and Lower James River Subbasins; and the Appomattox River Subbasin.

The James River Basin is defined by both hydrologic and political boundaries. The basin is bounded by the Potomac-Shenandoah River Basin, the Rappahannock River Basin and the York River Basins to the north. The southern boundary is made up of the New River Basin, the Roanoke River Basin and the Chowan River Basin. Its headwaters originate along the Virginia/West Virginia state line.

The James River Basin begins in the Alleghany Mountains and flows in a southeasterly direction to Hampton Roads where it enters the Chesapeake Bay. The James is formed by the confluence of the Jackson and Cowpasture Rivers and flows 228 miles to the Fall Line at Richmond and another 111 miles to the Chesapeake Bay.

The topography of the James River Basin varies throughout the four physiographic provinces that it spans. The Valley and Ridge Province extends from the Appalachian Plateau in West Virginia to the Blue Ridge Province. This province is dominated by narrow ridges and valleys running in a northeast/southwest direction, turning into a broad valley with low, rounded hills in the extreme southeast section of the province. The Blue Ridge Province, a remnant of a former highland, differs from the Valley and Ridge Province in rock types and geological structure. The Piedmont Province extends from the Blue Ridge Province to the Fall Line. The western section of the Piedmont has scattered hills and small mountains, gradually turning into gently rolling slopes and lower elevation in the eastern Piedmont Province. The Coastal Plain Province is separated from the Piedmont by the Fall Zone. The Fall Zone is a three mile stretch of river running through Richmond where the river descends 84 feet as it flows from the resistant rocks of the Piedmont to the softer sediments of the Coastal Plain.

Over 65 percent of the James River Basin is forested, with 19 percent in cropland and pasture. Approximately 12 percent is considered urban. The 1994 population for the James River Basin was approximately 1,909,511. This population is concentrated in two metropolitan areas: Tidewater, with over one million people, and the Greater Richmond - Petersburg area with over 750,000. Two smaller population centers are the Lynchburg and Charlottesville areas, each with over 100,000 people. All or portions of the following 39 counties and 14 cities lie within the basin: counties - Alleghany, Amherst, Bath, Nelson, Rockbridge, Augusta, Bedford, Botetourt, Campbell, Craig, Giles, Highland, Montgomery, Roanoke, Amelia, Buckingham, Chesterfield, Cumberland, Fluvanna, Goochland, Henrico, Powhatan, Albemarle, Appomattox, Prince Edward, Dinwiddie, Greene, Hanover, Louisa, Nottoway, Orange, Charles City, Isle of Wight, James City, Nansemond, New Kent, Prince George, Surry, and York; cities - Buena Vista, Clifton Forge, Covington, Lexington, Lynchburg, Charlottesville, Colonial Heights, Petersburg, Richmond, Hopewell, Norfolk, Newport News, Suffolk and Williamsburg.

The climate in the James River Basin is classified as humid subtropical but is subject to great variations from the Appalachian Mountains to the Coastal Plain. Lower temperatures and greater snowfall dominate the winter months in the mountainous areas whereas warm air from the Gulf Stream tends to moderate the climate in the Coastal Plain.

Average annual precipitation is 42.5 inches. Average annual snowfall amounts range from over 30 inches in the mountains to less than 10 inches along the coast.

Major tributaries to the James River are Craig Creek, Maury River, Tye River, Rockfish River, Slate River, Rivanna River, Willis Creek, Appomattox River, Chickahominy River, Pagan River, Nansemond River, and the Elizabeth River.

The James River Basin is divided into seven USGS hydrologic units as follows: HUC 02080201 -Upper James, HUC 02080202 - the Maury, HUC 02080203 - Upper Middle James, HUC 02080204 - the Rivanna, HUC 02080205 - Lower Middle James, HUC 02080206 - Lower James, and HUC 02080207 - the Appomattox, and HUC 02080208 - the Elizabeth. The nine hydrologic units are further divided into 92 waterbodies or watersheds.

Basin assessment information is presented in Tables 2.6-2-1, 2.6-2-2, 2.6-2-3.

TABLE 2.6-2-1

## JAMES RIVER BASIN INDIVIDUAL USE SUPPORT SUMMARY TABLE

**Total Size Monitored:**

Rivers - 3,804.50 miles  
 Lakes - 19,312.88 acres  
 Estuaries - 228.90 sq. miles

**Basin Size**

Rivers - 12,822 miles  
 Lakes - 20,854 acres  
 Estuaries - 261 sq. Miles

<b>Use</b>	<b>Water Body Type</b>	<b>Size Fully Supporting</b>	<b>Size Fully Supporting but Threatened</b>	<b>Size Partially Supporting</b>	<b>Size Not Supporting</b>	<b>Total Size Assessed</b>
<b>Aquatic Life</b>	River	1,209.67	2,905.13	197.66	68.60	4381.06
	Lake	16,237.35	3,346.20	0	0	19583.55
	Estuary	37.75	209.45	13.20	0.50	260.9
<b>Fish Consumption</b>	River	12,740.61	7.95	0	0	12748.56
	Lake	19,583.55	0	0	0	19583.55
	Estuary	23.75	237.15	0	0	260.9
<b>Shellfishing</b>	River	-	-	-	-	0
	Lake	-	-	-	-	0
	Estuary	100.87	0	50.97	23.75	175.59
<b>Swimming</b>	River	1,299.06	259.87	218.92	30.22	1808.07
	Lake	19,409.55	0	0	0	19409.55
	Estuary	234.15	8.83	13.03	2.42	258.43
<b>Drinking Water</b>	River	236.18	5.00	0	0	241.18
	Lake	14,998.00	0	0	0	14998
	Estuary	-	-	-	-	0

TABLE 2.6-2-2 SIZE OF WATERS IMPAIRED BY VARIOUS CAUSE CATEGORIES IN JAMES BASIN

Cause of Impairment	Type	Major Impact	Moderate/ Minor Impact
<b>General Standards (Benthics)</b>	River (mi)	0	49.29
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Unknown Toxicity</b>	River (mi)	0	0
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Non-Priority Organics</b>	River (mi)	0	20.20
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Pesticides</b>	River (mi)	0	0
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Priority Organics (TBT)</b>	River (mi)	0	0
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	13.20
<b>Metals</b>	River (mi)	0	0
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>pH</b>	River (mi)	21.63	7.00
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Siltation</b>	River (mi)	3.16	11.49
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Organic Enrichment/Low D.O.</b>	River (mi)	36.95	65.89
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0.50	0
<b>Thermal Modification</b>	River (mi)	0	66.81
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Pathogen Indicators</b>	River (mi)	30.22	218.92
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	25.82	64.00
<b>PCB's</b>	River (mi)	0	0
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Ammonia</b>	River (mi)	0	0
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0.50	0
<b>Suspended Solids</b>	River (mi)	0.20	0
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0

TABLE 2.6-2-3 SIZE OF WATERS IMPAIRED BY VARIOUS SOURCE CATEGORIES IN JAMES BASIN

Source of Impairment	Type	Major Impact	Moderate/ Minor Impact
<b>Industrial Point Sources</b>	River (mi) Lakes (acres) Estuary (mi <sup>2</sup> )	0.75 0 0.50	18.80 0 0
<b>Municipal Point Sources</b>	River (mi) Lakes (acres) Estuary (mi <sup>2</sup> )	2.16 0 0.50	20.33 0 0
<b>Combined Sewer Overflow</b>	River (mi) Lakes (acres) Estuary (mi <sup>2</sup> )	9.03 0 0	33.62 0 0
<b>Agriculture</b>	River (mi) Lakes (acres) Estuary (mi <sup>2</sup> )	8.90 0 0	129.11 0 0
<b>Suspended Solids</b>	River (mi) Lakes (acres) Estuary (mi <sup>2</sup> )	0.84 0 0	0 0 0
<b>Urban Runoff/Storm Sewers</b>	River (mi) Lakes (acres) Estuary (mi <sup>2</sup> )	11.74 0 2.07	44.22 0 9.57
<b>Commercial Port Activity</b>	River (mi) Lakes (acres) Estuary (mi <sup>2</sup> )	0 0 0	0 0 13.20
<b>Habitat Modification</b>	River (mi) Lakes (acres) Estuary (mi <sup>2</sup> )	1.00 0 0	0 0 0
<b>Upstream Impoundment</b>	River (mi) Lakes (acres) Estuary (mi <sup>2</sup> )	0 0 0	0 0 0
<b>Natural Sources</b>	River (mi) Lakes (acres) Estuary (mi <sup>2</sup> )	34.47 0 0	77.96 0 0.62
<b>Source Unknown</b>	River (mi) Lakes (acres) Estuary (mi <sup>2</sup> )	30.22 0 0.32	51.40 0 2.94
<b>Point/Nonpoint Source</b>	River (mi) Lakes (acres) Estuary (mi <sup>2</sup> )	0 0 0	26.97 0 0
<b>VDH Fish Consumption Advisory</b>	River (mi) Lakes (acres) Estuary (mi <sup>2</sup> )	0 0 0	0 0 0
<b>VDH Shellfish Condemnation</b>	River (mi) Lakes (acres) Estuary (mi <sup>2</sup> )	0 0 23.75	0 0 50.97

James River Basin  
Appendix B for 1998 305(b) and 303(d) Reports

R E G & W I O N D	MONITORING STATIONS	CONVENTIONAL WATER COLUMN MONITORING DATA										OTHER MONITORING DATA										SEDIMENT.		FISH TISSUE.		TYPE BIOL STN	COMMENTS				
		# VIOLATIONS / # SAMPLES										C O A					# b					# c					TYPE BIOL STN	COMMENTS			
		T	T	E	S	L	R	T	P	H	E	H	R	C	L	C	R	M	E	R	M	E	R	M	E	R	M	E	R		
IDENTIFICATION NUMBER	MONITORING STATION	P	M	L	T	D.O.	pH	T	L	A	S	U	L	R	Y	L	R	I	L	L	A	E	L	L	A	E	L	BIO	BIOL STN	COMMENTS	
E	P	T	T	E	S	L	T	L	P	S	T	O	L	O	a	T	M	A	T	S	D	T	N	D	T	S	D	T	MON		
V-I01R	JKS1 67	B	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	SI	REF	
V-I01R	2-JKS058.60	A	10 / 59	T*	0 / 59	S	0 / 59	S	0 / 55	S	/	/	/	/	/	/	2 / 52	S	/	/	0	S	0	S	/	/	/	SI	REF	Natural Conditions	
V-I02R	LTB 7.76	B	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	SI	REF		
V-I02R	BCC1 20.81	B	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	SI	NET		
V-I02R	2-BCC004.71	A	0 / 58	S	0 / 58	S	0 / 58	S	0 / 56	S	/	/	/	/	/	/	0 / 52	S	/	/	0	S	0	S	/	/	/	SI	REF		
V-I04R	2-CRE002.37	A	12 / 59	P*	0 / 59	S	0 / 59	S	0 / 54	S	/	/	/	/	/	/	1 / 50	S	/	/	0	S	0	S	/	/	/	NI	REF	Natural Conditions	
V-I12R	2-CWP068.52	A	0 / 20	S	0 / 20	S	0 / 20	S	1 / 17	S	/	/	/	/	/	/	1 / 17	S	/	/	0	S	0	S	/	/	/	NI	REF		
V-I13R	BLP 0.79	B	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	NI	REF			
V-I13R	2-BLP000.79	A	4 / 57	S	0 / 57	S	1 / 57	S	0 / 55	S	/	/	/	/	/	/	2 / 51	S	/	/	1	T	0	S	/	/	/	VI	SS	Ni	
V-I14R	<b>CYB 0.36</b>	B	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	NI	REF			
V-I14R	CWP1a 50.66	B	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	MI	NET			
V-I14R	<b>CST 7.42</b>	B	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	NI	NET			
V-I14R	CFP 3.94	B	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	NI	NET			
V-I14R	2-CWP050.66	A	0 / 3	J	0 / 3	J	0 / 3	J	0 / 2	J	/	/	/	/	/	/	0 / 1	J	/	/	1	T	0	S	/	/	/	NI	NET		
V-I15R	2-STU005.00	A	0 / 3	J	0 / 3	J	0 / 3	J	0 / 2	J	/	/	/	/	/	/	0 / 1	J	/	/	0	S	0	S	/	/	/	NI	REF		
V-I16R	CWP1 42.06	B	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	NI	REF			
V-I28R	2-ELK001.37	A	3 / 10	T*	0 / 10	J	0 / 10	J	0 / 9	J	/	/	/	/	/	/	0 / 7	J	/	/	1	T	0	S	/	/	/	Pb & Natural Conditions			
V-I28R	2-CEC000.04	A	0 / 10	J	0 / 10	J	0 / 10	J	0 / 8	J	/	/	/	/	/	/	0 / 6	J	/	/	0	S	0	S	/	/	/	NI	REF		
V-I28R	JMS295.68	SS	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	NI	NET			
V-I29R	2-CFP036.20	A	0 / 3	J	0 / 3	J	0 / 3	J	0 / 2	J	/	/	/	/	/	/	0 / 2	J	/	/	0	S	0	S	/	/	/	NI	REF		
V-I30R	CDR1a 43.01	B	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	NI	REF			
V-I30R	CDR1 13.29	B	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	SI	NET				
V-I30R	2-CFP004.67	A	0 / 59	S	0 / 59	S	0 / 59	S	0 / 55	S	/	/	/	/	/	/	0 / 50	S	/	/	0	S	0	S	/	/	/	NI	REF		
V-I31R	BRT 0.94	B	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	SI	NET				
V-I31R	2-BRT000.94	A	6 / 18	P*	0 / 18	S	1 / 18	S	1 / 16	S	/	/	/	/	/	/	2 / 16	T	/	/	0	S	0	S	/	/	/	VI	NET	Natural Conditions	
V-I32R	<b>LFC2 0.76</b>	B	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	SI	NET				
V-I32R	LFC1 4.80	B	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	VI	NET				
V-I32R	<b>CKS 3.04</b>	B	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	NI	NET				
V-I32R	2-LCF007.00	A	0 / 58	S	0 / 58	S	0 / 58	S	0 / 55	S	/	/	/	/	/	/	2 / 51	S	/	/	0	S	0	S	/	/	/	MI	NET		
V-I33R	<b>KRR 1.54</b>	B	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	NI	REF				
V-I33R	2-KRR001.54	A	0 / 9	J	0 / 9	J	0 / 9	J	0 / 8	J	/	/	/	/	/	/	0 / 7	J	/	/	0	S	0	S	/	/	/	NI	REF		
V-I33R	MRY029.17	SS	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	NI	REF				
V-I34R	<b>2-HYS001.41</b>	A	5 / 22	P*	0 / 22	S	0 / 22	S	2 / 21	S	/	/	/	/	/	/	5 / 20	P	/	/	0	S	0	S	/	/	/	NI	REF	Natural Conditions	
V-I35R	WST 2.60	B	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	NI	REF				
V-I35R	2-MRY038.10	A	0 / 59	S	0 / 59	S	0 / 58	S	0 / 58	S	/	/	/	/	/	/	3 / 58	S	/	/	0	S	0	S	/	/	/	NI	REF		
V-I35R	2-MIS000.04	A	0 / 22	S	0 / 22	S	0 / 22	S	0 / 20	S	/	/	/	/	/	/	5 / 20	P	/	/	0	S	0	S	/	/	/	NI	REF		
V-I35R	2-CGB001.80	A	0 / 18	S	0 / 18	S	0 / 18	S	0 / 17	S	/	/	/	/	/	/	4 / 16	P	/	/	0	S	0	S	/	/	/	NI	REF		
V-I35R	MRY023.81	SS	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	SI	NET				
V-I36R	STM 1.52	B	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	SI	NET				
V-I36R	STH 0.21	B	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	NI	NET				
V-I37R	MRY 5.58	B	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	SI	NET				
V-I37R	2-MRY014.78	A	0 / 59	S	0 / 59	S	0 / 58	S	0 / 58	S	/	/	/	/	/	/	3 / 58	S	/	/	0	S	0	S	/	/	/	1	T	PCB	
V-I37R	2-MRY013.00	A	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	SI	NET				
V-I37R	2-MRY005.39	A	0 / 59	S	0 / 59	S	1 / 58	S	0 / 58	S	/	/	/	/	/	/	2 / 58	S	/	/	0	S	0	S	/	/	/	NI	REF		
V-I37R	2-MRY000.46	A	0 / 59	S	0 / 59	S	1 / 58	S	11 / 59	T	/	/	/	/	/	/	5 / 59	S	/	/	0	S	0	S	/	/	/	0	S		
V-I37R	MRY004.88	SS	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	SI	NET	Inten. Survey			
V-I37R	MYR013.00	C,SS	/	/	/	/	/	/	/	/	/	/	/	/	/	/	1 / 58	S	/	/	0	0	0	0	/	/	/	SI	NET		
V-I38R	2-BLD001.00	A	0 / 59	S	0 / 59	S	0 / 58	S	0 / 57	S	/	/	/	/	/	/	1 / 58	S	/	/	0	S	0	S	/	/	/	SI	NET		
V-I38R	BLD 0.22	B	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	SI	NET				
W-I04R	2-JKS024.14	SS	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	0	0	0	0	/	/	/	SI	NET	Inten. Survey		

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R E G & W I O N D	MONITORING STATIONS	CONVENTIONAL WATER COLUMN MONITORING DATA										OTHER MONITORING DATA										SEDIMENT.				FISH TISSUE.				TYPE BIOL STN	COMMENTS						
		# VIOLATIONS / # SAMPLES										C O A					# b		# c		# d		# e		# f		# g										
		T	T	Y	E	M	L	D.O.	pH	T	L	A	S	U	L	R	C	H	P	O	L	C	R	M	E	R	M	E	R								
V-H24R	2-MNR000.39	A	0	/	10	J	0	/	10	J	0	/	8	J	/					0	/	8	J														
V-H25R	2-BKM002.01	A	0	/	16	S	0	/	16	S	0	/	16	S	/					2	/	14	T														
V-H26R	2-RRS005.35	A	0	/	16	S	0	/	16	S	1	/	16	S	/					0	/	13	S														
<b>V-H26R</b>	<b>2-RRS003.12</b>	A	0	/	59	S	2	/	59	S	5	/	59	S	/					<b>9</b>	/	<b>54</b>	P									Power Generation					
V-H26R	2-IVC005.19	A	0	/	4	J	0	/	4	J	0	/	4	J	/					0	/	4	J														
V-H26R	2-IVC000.02	A	0	/	5	J	0	/	5	J	0	/	4	J	/					0	/	4	J														
V-H26R	RRN 2.64	C	/	/	/	/	/	/	/	/	/	/	/	/	/																						
V-H27R	RRN 2.64	B	/	/	/	/	/	/	/	/	/	/	/	/	/																						
V-H27R	2-SFR000.60	A	0	/	9	J	0	/	9	J	0	/	9	J	/					0	/	8	J							0	S	MI	NET				
V-H27R	2-RRN002.19	A	0	/	60	S	0	/	60	S	3	/	60	S	0					4	/	55	S									MI	NET				
<b>V-H28R</b>	<b>RVN 35.91</b>	B	/	/	/	/	/	/	/	/	/	/	/	/	/																						
V-H28R	2-RVN037.54	A	0	/	17	S	0	/	17	S	0	/	17	S	0					2	/	15	T														
V-H28R	2-MWC000.60	A	0	/	22	S	0	/	22	S	0	/	22	S	2	/	20	S	/		3	/	19	T													
<b>V-H28R</b>	<b>2-MSC000.60</b>	A	0	/	20	S	0	/	20	S	0	/	19	S	0					<b>5</b>	/	<b>18</b>	P														
<b>V-H29R</b>	<b>2-RVN033.65</b>	A	0	/	59	S	0	/	59	S	2	/	59	S	6	/	57	S	/		<b>9</b>	/	<b>52</b>	P													
V-H29R	2-RVN015.97	A	0	/	60	S	0	/	60	S	3	/	60	S	4	/	58	S	/		7	/	54	S													
V-H30R	2-MCK000.40	A	0	/	22	S	0	/	22	S	3	/	22	S	1	/	19	S	/		0	/	18	S													
V-H31R	2-RVN001.64	A	0	/	58	S	0	/	58	S	2	/	58	S	4	/	56	S	/		6	/	51	S													
V-H31R	RVN003.35	SS	/	/	/	/	/	/	/	/	/	/	/	/	/																						
V-H31R	RVN015.97	C,SS	/	/	/	/	/	/	/	/	/	/	/	/	/														0	S	0	S					
V-H31R	RVN016.41	SS	/	/	/	/	/	/	/	/	/	/	/	/	/																						
V-H32R	2-CXB005.39	A	0	/	21	S	0	/	21	S	2	/	21	S	1	/	19	S	/		1	/	17	S							0	S	0	S			
P-H20R	2-JMS176.63	A	0	/	43	S	0	/	43	S	0	/	43	S	2	/	42	S	/		2	/	39	S													
P-H20R	JMS176.63	C,SS	/	/	/	/	/	/	/	/	/	/	/	/	/																						
P-H20R	JMS176.48	SS	/	/	/	/	/	/	/	/	/	/	/	/	/																						
P-H20R	JMS173.92	SS	/	/	/	/	/	/	/	/	/	/	/	/	/																						
P-H21R	2-NTH001.65	A	0	/	12	J	0	/	12	J	0	/	12	J	0	/	11	J	/		2	/	11	T													
P-H22R	2-BGC000.58	A	0	/	12	J	0	/	12	J	0	/	12	J	0	/	12	J	/		2	/	12	T													
P-H22R	2-SLT003.88	A	0	/	20	S	0	/	20	S	0	/	20	S	0	/	20	S	/		2	/	19	T													
<b>P-H33R</b>	<b>2-DCR003.00</b>	A	0	/	22	S	5	/	22	P	0	/	22	S	0	/	20	S	/		4	/	20	T													
P-H33R	2-JMS157.28	A	2	/	198	S	0	/	198	S	2	/	197	S	21	/	85	T	0	/	68	S	4	/	58	S											
P-H33R	JMS165.57	SS	/	/	/	/	/	/	/	/	/	/	/	/	/																						
P-H33R	JMS154.78	SS	/	/	/	/	/	/	/	/	/	/	/	/	/																						
P-H34R	2-BYR003.35	A	0	/	11	J	0	/	11	J	0	/	11	J	0	/	11	J	/		2	/	11	T													
P-H35R	2-WLL044.78	A	0	/	12	J	0	/	12	J	0	/	12	J	1	/	11	J	/		2	/	10	T													
<b>P-H36R</b>	<b>2-WLS004.27</b>	A	0	/	20	S	0	/	20	S	0	/	20	S	1	/	20	S	/		<b>5</b>	/	<b>20</b>	P													
P-H36R	WLS002.50	C,SS	/	/	/	/	/	/	/	/	/	/	/	/	/																						
P-H36R	WLS009.91	SS	/	/	/	/	/	/	/	/	/	/	/	/	/																						
P-H37R	2-BLG002.60	A	0	/	19	S	0	/	19	S	0	/	19	S	0	/	19	S	/		1	/	19	S													
P-H38R	2-BDM004.12	A	0	/	11	J	0	/	11	J	0	/	11	J	2	/	12	T	/		1	/	11	J													
P-H38R	2-FIN000.81	A	0	/	20	S	0	/	20	S	0	/	20	S	0	/	20	S	/		3	/	20	T													
P-H38R	JMS136.00	SS	/	/	/	/	/	/	/	/	/	/	/	/	/																						
<b>P-H39R</b>	<b>2-JMS110.34</b>	B	/	/	/	/	/	/	/	/	/	/	/	/	/																						
P-H39R	2-JMS110.44	B	/	/	/	/	/	/	/	/	/	/	/	/	/																						
<b>P-H39R</b>	<b>2-JMS110.49</b>	A	0	/	19	S	0	/	19	S	0	/	19	S	0	/	19	S	/		<b>12</b>	/	<b>19</b>	N													
P-H39R	2-JMS110.90	A	0	/	23	S	0	/	23	S	0	/	21	S	0	/	11	J	/		<b>15</b>	/	<b>35</b>	N													
P-H39R	2-JMS111.17	A	0	/	19	S	0	/	19	S	0	/	19	S	0	/	19	S	/		<b>12</b>	/	<b>19</b>	N													
P-H39R	2-JMS111.32	A	0	/	38	S	6	/	38	S	0	/	38	S	1	/	12	J	/		<b>25</b>	/	<b>36</b>	N													
P-H39R	2-JMS111.35	A	0	/	36	S	0	/	36	S	0	/	37	S	0	/	11	J	/		<b>12</b>	/	<b>35</b>	P													
P-H39R	2-JMS111.47	A	0	/	34	S	0	/	34	S	0	/	34	S	0	/	11	J	/		<b>13</b>	/	<b>34</b>	N													
P-H39R	2-JMS111.48	A	0	/	38	S	17	/	38	N	0	/	38	S	5	/	12	T	/		<b>30</b>	/	<b>36</b>	N													
P-H39R	2-JMS111.55	A	0	/	37	S	3	/	37</td																												

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R E G & W I B O I N D	MONITORING STATIONS	CONVENTIONAL WATER COLUMN MONITORING DATA										OTHER MONITORING DATA										SEDIMENT.		FISH TISSUE.		TYPE BIOL STN	COMMENTS														
		# VIOLATIONS / # SAMPLES										C O A					# b					# c					# d		# e		# f		# g								
		T	T	Y	E	M	R	E	T	P	H	R	C	R	L	C	R	M	E	R	M	E	R	E	M	E	R	E	O	E	E	O	E	E	O	E	E				
IDENTIFICATION NUMBER	MONITORING STATION	P	M	L	L	L	D.O.	T	pH	T	L	A	S	L	R	Y	L	R	I	L	LE	L	AE	L	LE	L	AE	L	LE	L	AE	L	LE	L	AE	L	BIO	MON	TYPE BIOL STN	COMMENTS	
		E	P	T	T					T	L	P	S	T	O	L	a	T	M	A	T	SD	T	ND	T	SD	T	ND	T	SD	T	ND	T	SD	T	ND	T				
T-G10E	2-JMS032.59	A	0	/	63	S	0	/	63	S	0	/	62	S	/	/	/	/	1	/	40	S	/	/	/	/	/	/	/	/	/	/	/	/							
T-G10E	2-JMS042.52	A	0	/	10	J	0	/	10	J	0	/	10	J	/	/	/	/	0	/	1	J	/	/	/	/	/	/	/	/	/	/	/								
T-G10E	2-JMS042.92	A	0	/	63	S	0	/	63	S	0	/	62	S	/	/	/	/	2	/	40	S	/	/	/	/	/	/	/	/	/	/	/								
T-G10E	2-JMS042.96	A	0	/	10	J	0	/	10	J	0	/	9	J	/	/	/	/	1	/	1	J	/	/	/	/	/	/	/	/	/	/	/								
T-G10E	2-MIC000.03	A	0	/	57	S	0	/	57	S	1	/	57	S	/	/	/	/	7	/	58	S	/	/	/	/	/	/	/	/	/	/									
T-G10E	2-MIC002.44	A	0	/	1	J	0	/	1	J	0	/	1	J	/	/	/	/	0	/	0	J	/	/	/	/	/	/	/	/	/	/									
<b>T-G10E</b>	<b>2-POW000.60</b>	A	0	/	53	S	0	/	53	S	0	/	53	S	/	/	/	/	9	/	55	P	/	/	/	/	/	/	/	/	/	/									
T-G10E	RET5.2	A	/	/	/	/	/	/	/	/	/	/	/	/	/	/	2	/	66	S	/	/	/	/	/	/	/	/	/	/	/	/									
T-G10E	RET5.2N	A	/	/	/	/	/	/	/	/	/	/	/	/	/	0	/	5	S	/	/	/	/	/	/	/	/	/	/	/											
T-G10E	RET5.2S	A	/	/	/	/	/	/	/	/	/	/	/	/	/	0	/	5	S	/	/	/	/	/	/	/	/	/	/												
T-G10R	2-CGE001.41	A	0	/	22	S	13	/	22	Z	0	/	22	S	/	/	1	/	19	S	/	/	/	/	/	/	/	/	/	/				Natural Conditions							
T-G10R	2-POW006.77	A/B	0	/	21	S	1	/	21	S	0	/	21	S	0	/	21	S	/	1	/	20	S	/	/	/	/	/	/	/	/	/	/	NI							
T-G11E	2-CKT000.19	A	0	/	12	J	0	/	12	J	0	/	12	J	/	/	/	0	/	12	J	/	1	T	/	/	/	/	/	/	/	/	Lead 96								
T-G11E	2-CKT000.84	A	0	/	49	S	0	/	49	S	0	/	49	S	/	/	/	1	/	49	S	/	5	T	/	/	/	/	/	/	/	/	Pb 93; Sb, Ni 95; Zn 93,95								
T-G11E	2-CKT002.22	A	0	/	12	J	1	/	12	J	0	/	12	J	/	/	/	0	/	12	J	/	/																		
T-G11E	2-DEP000.26	A	0	/	22	S	0	/	22	S	0	/	22	S	/	/	/	4	/	22	S	/	3	T	/	/	/	/	/	/	/	/	Lead 96; Zinc 96,97								
T-G11E	2-JMS013.10	A	0	/	63	S	0	/	63	S	0	/	61	S	/	/	/	0	/	51	S	/	/										PCB in fish tissue 94, 96								
T-G11E	2-JMS017.01	C	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	0	/	39	S	/	/	2	T	/	/	/	/	/	/										
T-G11E	2-JMS021.04	A	0	/	63	S	1	/	63	S	0	/	62	S	/	/	/	0	/	39	S	/	/	1	T	/	/	/	/	/	/	/									
T-G11E	2-JMS021.34	A	0	/	10	J	0	/	10	J	0	/	10	J	/	/	/	0	/	1	J	/	/																		
T-G11E	2-JMS021.74	A	0	/	10	J	0	/	10	J	0	/	10	J	/	/	/	0	/	1	J	/	1	T	/	/	/	/	/	/	/		Antimony 1995								
T-G11E	2-JOG000.62	A	0	/	30	S	0	/	30	S	0	/	30	S	/	/	/	0	/	29	S	/	1	T	/	/	/	/	/	/											
T-G11E	2-PGN000.00	A	0	/	26	S	0	/	26	S	1	/	26	S	/	/	/	1	/	25	S	/	/																		
T-G11E	2-PGN000.80	A	0	/	30	S	0	/	30	S	0	/	30	S	/	/	/	1	/	29	S	/	/																		
T-G11E	2-PGN001.19	A	0	/	30	S	0	/	30	S	1	/	30	S	/	/	/	1	/	29	S	/	/																		
T-G11E	2-PGN002.58	A	0	/	29	S	0	/	29	S	1	/	29	S	/	/	/	2	/	28	S	/	/																		
T-G11E	2-PGN003.57	A	0	/	28	S	1	/	28	S	1	/	28	S	/	/	/	5	/	27	S	/	/																		
T-G11E	2-PGN004.57	A	0	/	29	S	1	/	29	S	1	/	29	S	/	/	/	3	/	26	S	/	1	T	/	/	/	/													
<b>T-G11E</b>	<b>2-PGN005.46</b>	A	0	/	29	S	2	/	29	S	0	/	29	S	/	/	/	9	/	27	P	/	/																		
T-G11E	2-PGN006.65	A	0	/	29	S	3	/	29	S	0	/	29	S	/	/	/	8	/	27	P	/	/																		
T-G11E	2-PGN007.44	A	1	/	28	S	2	/	28	S	0	/	28	S	/	/	/	9	/	27	P	/	/																		
T-G11E	2-PGN008.42	A	0	/	28	S	2	/	28	S	0	/	28	S	/	/	/	9	/	27	P	/	/																		
T-G11E	2-WVK003.98	A	0	/	22	S	0	/	22	S	0	/	22	S	/	/	/	4	/	22	S	/	/																		
T-G11E	LE5.1	A	/	/	/	/	/	/	/	/	/	/	/	/	0	/	66	S	/	/																					
T-G11E	LE5.2	A	/	/	/	/	/	/	/	/	/	/	/	/	1	/	65	S	/	/																					
T-G11E	LE5.2N	A	/	/	/	/	/	/	/	/	/	/	/	/	0	/	5	S	/	/																					
T-G11E	LE5.2S	A	/	/	/	/	/	/	/	/	/	/	/	/	0	/	5	S	/	/																					
T-G11E	LE5.3	A	/	/	/	/	/	/	/	/	/	/	/	/	1	/	67	S	/	/																					
T-G11R	2-BAP000.80	B	0	/	4	J	0	/	4	J	0	/	4	J	0	/	4	J	/	1	/	4	J	/	/																
T-G11R	2-CKT005.72	B	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/															
T-G11R	2-CRL004.04	B	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/														
T-G11R	2-PGN010.07	A	0	/	59	S	4	/	59	S	0	/	59	S	2	/	59	S	/	4	/	59	S	/	1	T	/	/													
T-G12R	2-CHN006.40	B	0	/	1	J	0	/	1	J	1	/	1	J	0	/	1	J	/	0	/	1	J	/	/																
T-G12R	2-ELE001.60	B	0	/	2	J	0	/	2	J	0	/	2	J	1	/	2	J	/	0	/	2	J	/	/																
T-G12R	2-ELE003.40	A/B	0	/	13	S	0	/	13	S	7	/	13	Z	0	/	13	S	/	0	/	13	S	/	/																

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R E G & W I B O N D	MONITORING STATIONS	CONVENTIONAL WATER COLUMN MONITORING DATA										OTHER MONITORING DATA										SEDIMENT.		FISH TISSUE.		TYPE BIOL STN	COMMENTS			
		# VIOLATIONS / # SAMPLES										C O A					# b					# c								
		R	E	T	T	R	R	E	H	E	H	E	I	T	E	EX	E	OX	E	EX	E	OX	E	EX	E	OX	E			
IDENTIFICATION NUMBER	P M L L D.O. E	T	T	pH	T	L	A	S	U	L	R	Y	L	R	I	L	LE	L	AE	L	LE	L	AE	L	LE	L	AE	L	BIO STN	MON
T-G13E	2-NAN013.50	A	0	/	6	J	1	/	6	J	0	/	6	J	/	/	/	1	/	6	J	/	/	/	/	/	/			
T-G13E	2-NAN019.14	A	1	/	59	S	2	/	59	S	1	/	59	S	/	/	/	34	/	59	N	/	1	T	/	/	/		Lead 93	
T-G13E	2-SGL001.00	A	1	/	59	S	5	/	59	S	5	/	59	S	/	/	/	23	/	59	N	/								
T-G13R	2-BEN001.42	A	0	/	59	S	3	/	59	S	3	/	59	S	6	/	59	S	/	3	/	59	S	/	2	T			Antimony 95 and 96	
T-G15E	2-BRO001.35	A	0	/	54	S	6	/	54	S	1	/	54	S	/	/	/	29	/	51	N	/								
T-G15E	2-EBE000.40	A	0	/	49	S	5	/	49	S	1	/	48	S	/	/	/	6	/	46	S	/	3	T					Lead 95; Zinc 95,96; <b>TBT</b>	
T-G15E	2-ELI002.00	A	0	/	63	S	3	/	63	S	0	/	61	S	/	/	/	0	/	40	S	/							<b>TBT</b>	
T-G15E	2-ELI003.17	A	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/								<b>TBT</b>		
T-G15E	2-ELI006.33	A	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/								<b>TBT</b>		
T-G15E	2-JMS005.72	A	0	/	64	S	0	/	64	S	1	/	63	S	/	/	/	0	/	39	S	/								
T-G15E	2-LAF000.00	A	0	/	48	S	0	/	48	S	0	/	48	S	/	/	/	0	/	47	S	/								
T-G15E	2-SBE000.57	A	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/									<b>TBT</b>		
T-G15E	2-SBE001.53	A	0	/	49	S	5	/	49	S	0	/	48	S	/	/	/	5	/	46	S	/	5	T	1	T		St 95; Pb, Zn 95,96; PCB 96, <b>TBT</b>		
T-G15E	2-SBE002.30	A	0	/	33	S	3	/	33	S	0	/	33	S	/	/	/	2	/	32	S	/	5	T				St 95; Pb, Zn 95,96		
T-G15E	2-SBE002.88	A	0	/	33	S	3	/	33	S	0	/	33	S	/	/	/	1	/	32	S	/	3	T				Sb, Pb, Zn 95; <b>TBT</b>		
T-G15E	2-SBE004.61	A	1	/	32	S	2	/	32	S	0	/	32	S	/	/	/	1	/	32	S	/								
T-G15E	2-SBE005.48	A	1	/	32	S	2	/	32	S	0	/	32	S	/	/	/	0	/	32	S	/								
T-G15E	2-SBE008.40	A	0	/	33	S	2	/	33	S	0	/	33	S	/	/	/	0	/	32	S	/								
T-G15E	2-WBE000.56	A	0	/	33	S	0	/	33	S	0	/	33	S	/	/	/	1	/	33	S	/	2	T				Lead, Zn 95		
T-G15E	LE5.4	A	/	/	/	/	/	/	/	/	/	/	/	/	0	/	67	S	/	/										
T-G15E	LE5.6	A	/	/	/	/	/	/	/	/	/	/	/	/	1	/	67	S	/	/										